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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 03/01/2010 have been fully considered but they are not persuasive.

Regarding the applicant's arguments that:

"In Love et al.'s system, in order to allow each of the Active Set base stations to decode each EUDCH sub-frame, the mobile station signals, associated to each transmission, the corresponding TFR1 that is defining rate and modulation coding information and HARQ status of the respective information. The mobile station codes the TFR1 and sends the TFR1 over the same frame interval as the EUDCH sub-frame (see paragraph [0038]). As the TFR1 is included to each respective transmission to each respective base station of the Active Set, a distributed scheduling function can be implemented (see paragraphs [0039], [0037] and [0016])."

With respect to instant claim 38, the Applicants respectfully submit that Love et al. fails to teach or suggest the step of "determining, at the at least one scheduling base station of said plurality of base stations, scheduling information for the mobile terminal indicative of allocated maximum amount of uplink resources applicable to the individual HARQ processes used for uplink data transmission." Paragraphs [0018], [0038] and [0039] of Love et al, cited in the Office Action do not teach this feature, as these passages relate to the mobile terminal determining the "maximum data rate" to use in view of the multiple scheduling assignments received from the Active Set base stations

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(BTS), which bears no relevance to the noted feature of claim 38.” (see page 16-17 of the remarks); the examiner respectfully disagrees.

As stated for example in paragraph 18 of LOVE, LOVE discloses "when an MS is explicitly scheduled (Explicit Mode) by the BTS, for example, to use the enhanced up link channel, ..., the MS must determine a transmission rate given the constraints of a maximum rate or equivalently a maximum power margin indicated by the scheduler and the amount of data in its buffer”, which reads on the applicant’s claimed “determining, at the at least one scheduling base station of said plurality of base stations, scheduling information for the mobile terminal indicative of allocated maximum amount of uplink resources applicable to the individual HARQ processes used for uplink data transmission”. When in explicit mode, the BTS explicitly provides the MS with scheduling information indicative of a maximum amount of allocated uplink resources provided to the MS. Although the MS further considers impact on the adjacent cells (see paragraph 19 for example), the scheduling information provided to the MS from the BTS is indicative of allocated maximum amount of uplink resources applicable to the individual processes used for uplink data communication within the MS.

Furthermore, the applicant argues that:

“the "scheduling information" mentioned in Love et al. is not (scheduling) information that is indicative of the allocated maximum amount uplink resources applicable to the individual HARQ processes. Hence, despite the fact that the information is transmitted from the mobile station in Love et al. and not the scheduling

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base station as in Applicants' claim 38, the scheduling information of Love et. al. is further not information that informs the at least one other base station on the applicability of allocated maximum amount of uplink resources for uplink data transmissions on the individual HARQ processes" (see page 19 of the remarks); the examiner respectfully disagrees. Although information transmitted to the active set is mobile station specific, the information is used **"to inform the at least one other base station on the applicability of allocated maximum amount of uplink resources for uplink data transmissions"** as claimed since the values are used to adjust scheduling within the base stations listed in the active set during soft handover. This is seen for example in paragraph 37-39, wherein each BTS can include a scheduler, or scheduling function and is used to provide scheduling functions in a distributed fashion.

2. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 38-45, 48, 51-54, 58-63, 75 are rejected under 35 U.S.C. 103(a) as being unpatentable over LOVE et al (US 2004/0219920) in view of LEGG et al (US 6,414,947).

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Regarding claim 38, LOVE discloses a method for communicating information relating to the scheduling of uplink data transmissions , wherein a mobile terminal **[mobile station]** uses a plurality of Hybrid Automatic Repeat reQuest (HARQ) processes to transmit uplink data via an Enhanced Uplink Dedicated Channel of a Universal Mobile Telecommunication System (UMTS) to a plurality of base stations **[base transceiver stations]** during soft handover of the mobile terminal in a mobile communication system, and wherein at least one base station of said plurality of base stations schedules uplink data transmissions of the mobile terminal in soft handover (abstract; paragraph 19, 30; uplink scheduling of a mobile station), the method comprising: determining, at the at least one scheduling base station of said plurality of base stations, scheduling information for the mobile terminal indicative of allocated maximum amount of uplink resources applicable to the individual HARQ processes used for uplink data transmission (paragraph 18, 38, 39; maximum data rate based on scheduling and HARQ status), transmitting information to at least one other base station of said plurality of base stations to inform the at least one other base station on the applicability of allocated maximum amount of uplink resources for uplink data transmissions on the individual HARQ processes (paragraph 18, 37-39; 42; BTS's in the active set are provided scheduling information of mobile station in soft handover), and scheduling, by the at least one other base station at least one other mobile terminal in communication with a respective base station based on the information received from the scheduling base station (paragraph 42, 43; information is used to determine a maximum allowed power margin target or limit for each mobile station). However,

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LOVE does not expressly disclose wherein the transmitting is from the at least one scheduling base station. In the same field of endeavor, LEGG discloses transmitting information from at least one scheduling base station to at least one other base station (col. 6, line 15-34; resource allocation communicated to a relevant base station. This information can be distributed in any part of the system including base stations).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify LOVE to include the teachings of LEGG, since transmission of information from the base station would allow a network to provide resources to a relevant base station without using wireless resources from the mobile station.

Regarding claim 39, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. LOVE further discloses further comprising signaling by said at least one scheduling base station the determined scheduling information to the mobile terminal in soft handover to allocate the maximum amount of uplink resources to the mobile terminal for uplink data transmissions on the individual HARQ processes (paragraph 15, 16).

Regarding claim 40, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. LOVE further discloses wherein the maximum amount of uplink resources applicable on the individual HARQ processes used for uplink data transmissions indicates the maximum data rate or the maximum uplink transmission power ratio that may be used by the mobile terminal for uplink transmissions using the individual HARQ processes (paragraph 48, 50, 55, 58).

Regarding claim 41, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. LOVE further discloses wherein the at least one scheduling base station schedules uplink data transmissions by controlling the Transport Format Combination Set (TFCS) available to the mobile terminal in soft handover for uplink data transmission or by controlling the uplink transmission power ratio of the mobile terminal (paragraph 58, 61; control of uplink transmission power ratio).

Regarding claim 42, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. The combination of LOVE and LEGG further discloses wherein the indicated allocated applicability of maximum amount of uplink resources for uplink data transmission on the individual HARQ processes is transported via a serving radio network controller (LOVE- paragraph 18, 37-39; 42; LEGG - col. 6, line 15-34; LOVE disclose the indicated allocated applicability of maximum amount of uplink resources, while LEGG discloses transmission of resource allocation to a relevant base station via a network controller), and wherein indicating the applicability of allocated maximum amount of uplink resources for uplink data transmission on the HARQ processes comprises: signaling the applicability of allocated maximum amount of uplink resources for uplink data transmissions on the individual HARQ processes from the at least one scheduling base station to the serving radio network controller, and informing the applicability of allocated maximum amount of uplink resources for uplink data transmissions on the individual HARQ processes to the other base stations by the serving radio network controller (LOVE- paragraph 18, 37-39; 42; LEGG - col. 6, line 15-

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34; LOVE disclose the indicated allocated applicability of maximum amount of uplink resources, while LEGG discloses transmission of resource allocation to a relevant base station via a network controller).

Regarding claim 43, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. The combination of LOVE and LEGG further discloses wherein the serving radio network controller determines whether to forward the applicability of allocated maximum amount of uplink resources for uplink data transmissions on the individual HARQ processes to a respective one of said other base stations based on cell interference within the radio cell controlled by the respective one of said other base stations (LOVE – paragraph 18, 42, 46; LEGG - col. 6, line 15-34; scheduling information used to determine interference of adjacent base stations).

Regarding claim 44, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. LOVE further discloses wherein the indicated allocated applicability of maximum amount of uplink resources for uplink data transmissions on the individual HARQ processes for is transported using control signaling (paragraph 41).

Regarding claim 45, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. The combination of LOVE and LEGG further discloses wherein the scheduling base station determines, signals and indicates the applicability of allocated maximum amount of uplink resources for uplink data transmissions on the individual HARQ processes for the mobile terminal in soft

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handover each time the mobile terminal in soft handover is scheduled by the scheduling base station (LOVE – abstract; paragraph 46; LEGG - col. 6, line 15-34).

Regarding claim 48, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. The combination of LOVE and LEGG further discloses wherein the plurality of base stations defines the active set of the mobile terminals in soft handover and wherein the method further comprises adding a base station to the active set of the mobile terminals and signaling the applicability of allocated maximum amount of uplink resources for uplink data transmissions on the individual HARQ processes for the mobile terminal in soft handover to said added base station by the serving radio network controller (LOVE - paragraph 4, 5, 29; LEGG - col. 6, line 15-34).

Regarding claim 51, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. LOVE further discloses wherein each of said base stations schedules uplink data transmissions of the mobile terminal in soft handover to the respective one of said plurality of base stations (paragraph 36, 37).

Regarding claim 52, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. LOVE further discloses wherein each of the plurality of base stations determines scheduling information to the mobile terminal indicative of an allocated maximum amount of uplink resources for uplink data transmission on the individual HARQ processes allocated to the mobile terminal by the respective base station, and signals the determined scheduling information to the mobile terminal in soft handover to allocate the maximum amount of uplink resources

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for uplink data transmissions using the individual HARQ processes to the terminal for uplink data transmission to the respective base station (paragraph 18, 37-39, 42).

Regarding claim 53, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. LOVE further discloses further comprising choosing by the mobile terminal the lowest assigned maximum amount of uplink resources for uplink data transmissions using the individual HARQ processes of uplink transmissions to all base stations of the plurality of base stations (paragraph 39, 47).

Regarding claim 54, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. LOVE further discloses further comprising forming by the mobile terminal a combined maximum amount of uplink resources on the assigned maximum amounts of uplink resources for uplink data transmissions using the HARQ processes, which is used by the mobile terminal for uplink transmissions to all base stations of the plurality of base stations (paragraph 46, 47).

Regarding claim 58, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. The combination of LOVE and LEGG further discloses further comprising requesting by a serving radio network controller from at least one base station of said plurality of base stations to signal the applicability of allocated maximum amount of uplink resources for uplink data transmissions on the individual HARQ processes for the mobile terminal in soft handover to said serving radio network controller (LOVE – paragraph 38; LEGG – col. 5, line 55-60; col. 6, line 15-34; resources allocated for a mobile in soft handover using associated cell determination information forwarded from the network controller).

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Regarding claim 59, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. LOVE further discloses wherein the maximum allocated amount of uplink resources for uplink, data transmissions on the individual HARQ processes is signaled from a base station to the mobile terminal via a shared channel, or a dedicated channel (LOVE – paragraph 90, 113; LEGG – col. 8, lines 47-63).

Regarding claim 60, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. LOVE further discloses wherein the transmitted uplink data is carried by an Enhanced Dedicated Channel (E-DCH) (paragraph 42, 44; EUDCH).

Regarding claim 61, LOVE discloses a mobile communication system for communicating information relating to the scheduling of uplink data transmissions (abstract), wherein the communication system comprises: a mobile terminal that uses a plurality of Hybrid Automatic Repeat request (HARQ) processes to transmit uplink data on an Enhanced Uplink Dedicated Channel of a Universal Mobile Telecommunication System (UMTS) to a plurality of base stations during soft handover of the mobile terminal in the mobile communication system, and said plurality of base stations (abstract; paragraph 19, 30; uplink scheduling of a mobile station), wherein at least one base station of said plurality of base stations schedules uplink data transmissions of the mobile terminal in soft handover (paragraph 18, 38, 39; maximum data rate based on scheduling and HARQ status), wherein the at least one scheduling base station of said plurality of base stations determines scheduling information for the mobile terminal

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indicative of an allocated maximum amount of uplink resources applicable to HARQ processes used for uplink data transmissions and transmits information to at least one other base station of the plurality of base stations to inform the at least one other base station on the applicable allocated maximum amount of uplink resources for uplink data transmissions on the individual HARQ processes (paragraph 18, 37-39; 42; BTS's in the active set are provided scheduling information of mobile station in soft handover), and wherein the at least one other base station schedules at least one other mobile terminal in communication with a respective base station based on the information received from the scheduling base station (paragraph 42, 43; information is used to determine a maximum allowed power margin target or limit for each mobile station). However, LOVE does not expressly disclose wherein the transmitting is from the at least one scheduling base station. In the same field of endeavor, LEGG discloses transmitting information from at least one scheduling base station to at least one other base station (col. 6, line 15-34; resource allocation communicated to a relevant base station. This information can be distributed in any part of the system including base stations). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify LOVE to include the teachings of LEGG, since transmission of information from the base station would allow a network to provide resources to a relevant base station without using wireless resources from the mobile station.

Regarding claim 62, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. LOVE further discloses wherein the at least one

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scheduling base station transmits the determined scheduling information to the mobile terminal in soft handover to allocate the maximum amount of uplink resources applicable to the HARQ processes used to uplink data transmissions (paragraph 15, 16).

Regarding claim 63, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. LOVE further discloses wherein the other base stations of said plurality of base stations schedule at least one other mobile terminal in communication with a respective base station taking into account the indicated applicability of allocated maximum amount of uplink resources for uplink data transmissions on the HARQ processes for said mobile terminal in soft handover (paragraph 42, 43).

Regarding claim 75, LOVE further discloses wherein the uplink maximum transmission power ratio is a maximum power ratio of a data channel to a control channel for uplink transmissions (paragraph 50, 51).

3. Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over LOVE et al (US 2004/0219920) in view of LEGG et al (US 6,414,947) and further in view of SEO et al (US 2003/01851559 A1).

Regarding claim 49, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. However, the combination of LOVE and LEGG does not expressly disclose wherein information for signaling of the applicability of maximum amount of uplink resources for uplink data transmissions on the individual HARQ processes to said added base station is comprised within a message

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communicated during the active set update procedure. In the same field of endeavor, SEO discloses wherein information for signaling of the applicability of maximum amount of uplink resources for uplink data transmissions on individual HARQ processes to an added base station is comprised within a message communicated during the active set update procedure (paragraph 89, 90; Table 5; resource allocation transmitted during active set update). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combination of LOVE and LEGG to include the teachings of SEO, since such a modification would provide updated active set base stations with current information relating to resources allocated to mobile terminals.

4. Claim 50 is rejected under 35 U.S.C. 103(a) as being unpatentable over LOVE et al (US 2004/0219920) in view of LEGG et al (US 6,414,947) and further in view of ZHANG et al (US 2005/0094600).

Regarding claim 50, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. However, the combination of LOVE and LEGG does not expressly disclose wherein one base station of said plurality of base stations schedules uplink data transmissions of the mobile terminal in soft handover to all base stations of said plurality of base stations. In the same field of endeavor, ZHANG discloses wherein one base station of a plurality of base stations schedules uplink data transmissions of the mobile terminal in soft handover to all base stations of said plurality of base stations (paragraph 51, 52; primary node provides scheduling). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention

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was made to modify the combination of LOVE and LEGG to include the teachings of ZHANG, since ZHANG states that such a modification would improve coordination between a plurality of Nodes during soft handover (paragraph 2, 7).

Allowable Subject Matter

5. Claims 46, 47, 55-57 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ARIEL BALAOING whose telephone number is (571)272-7317. The examiner can normally be reached on Monday-Friday from 8:00 AM to 4:30 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, V. Paul Harper can be reached on (571) 272-7605. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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